

ZULF'S FEBRUARY 6 2022 STANFORD FALL 2016 ANALYSIS PH.D. QUAL EFFORT

ZULFIKAR MOINUDDIN AHMED
ZULFIKAR.AHMED@GMAIL.COM

1. MY FOUR-SPHERE THEORY IS THE FINAL THEORY OF MACROSCOPIC NATURE

I don't think that many people are fully grasping the importance of my four-sphere theory yet. My four-sphere theory is *the final theory of macroscopic Nature period*. There will never be any other theoretical physics above $\delta = 10^{-15}$ cm or so that will ever be able to compete with my four-sphere theory because my four-sphere theory is *exact description of Nature* and displaces Quantum Mechanics, General Relativity and Expansionary Cosmology. All problems of theoretical physics in the entire history of physics are resolved in my four-sphere theory. I eliminate gravity, explain how redshift occurs in a static universe, provide parsimonious explanation of wave particle duality in Nature, and produce coherent mathematical physics without any contradictions at all. It is not any provisional toy model. It is exact description of Nature without any mysticism of quantum mechanics. It is the *Final Theory of Nature* and it will never be displaced because it is absolute truth. Please read my notes to understand it [?]. Cosmological constant, weakness of gravity, wave-particle duality, Bohm-Aharanove reality of EM Potential are all clarified. Furthermore my Ahmed-d'Alembert law is the only law of Nature (and neither Schroedinger nor Maxwell are correct). Human race has, from me, the final laws of Nature above $\delta = 10^{-15}$ cm. The details will change nothing. Theoretical physics for $\delta = 10^{-15}$ cm reaches absolute *perfection* with my theory.

2. HOW BILL GATES REVEALS HIS ILLITERATE MORONICITY WITH HIS OPINIONS

Bill Gates in meta just said to Stanford Political Science, "Bill doesn't want natural rights *granted* to non-whites" showing profound stupidity and ignorance that are characteristic of hick illiterate peasant-born idiots in America who have failed their high school course on American History and Government. These types of illiterate hick morons should not be revered or given credibility by American Society at all.

I will bet my socks and shoes that he does not even know anything about the struggles in Europe that led to formulation by John Locke of natural rights theory. He literally calls US Declaration of Independence Preamble, and let me quote it again here so my dear readers can appreciate the profound irony when a charlatan in US Technology Industry who *pretends* to have 160 IQ, who *pretends* to have an SAT score of 1590, says that he does not want such and such *granted* natural rights.

We hold these truths to be self-evident, that all men are created equal, that they are endowed by their Creator with certain unalienable Rights, that among these are Life, Liberty and the pursuit of Happiness.—That to secure these rights, Governments are instituted among Men, deriving their just powers from the consent of the governed.

As an American who has chosen to make this country my home, I am profoundly familiar with this as are most educated and respectable American men and women I have met. But this *Bill Gates* is not among them.

There are many resources to learn about natural rights theory. Here is a reasonable synopsis: "The most famous natural right formulation comes from John Locke, who argued that the natural rights include perfect equality and freedom, and the right to preserve life and property. Other Enlightenment and post-Enlightenment philosophers that developed and complicated the concept of natural rights were John Lilburne, Francis Hutcheson, Georg Hegel, and Thomas Paine." [2]

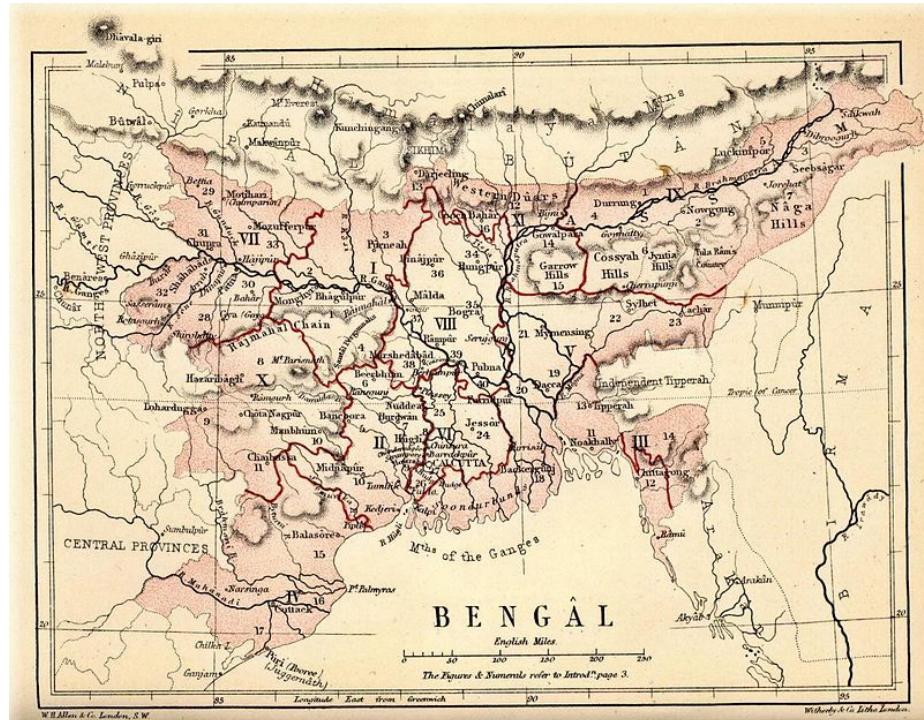
The key point is that this *Bill Gates* is so ignorant that he does not have the intellectual capacity to understand natural rights and does not have any appreciation for European intellectual tradition that led to their adoption by America's Founders. He is more Ostrogoth barbaric savage type. He has the absurd delusion that he is the monarch of United States.

Of course one has to remember that Ostrogoths were barbaric and ignorant compared to Romans but they were still able to sack Rome, so he is both savage, barbaric, stupid and quite dangerous to our Multi-Ethnic Classical Liberal Democratic Republic. He *must be destroyed and eliminated* and by this obviously I do not mean that I will go around in helicopters on rooftops with pretending to be Jason Bourne. I mean the nation must come together and seek to end this *Bill Gates Menace* which is a threat to the natural rights of all people at home and abroad.

This *Bill Gates* believes that preamble of US Declaration of Independence is *British claptrap* showing his stupidity, ignorance and intellectual incompetence as plainly as possible.

3. ELEMENTARY ASPECTS OF ZULFIKAR MOINUDDIN AHMED'S ETHNIC ANCESTRY

Ah, well my lineage is noble but from *Vedic India*. For the past thousand years or so my forefathers were Bengali Muslims. But my nobility is from Hindu Aristocracy from more ancient times. Let me show you.



This is Bengal, my place of birth. I was born in this general area on November 19 1973. There is a lot of confusion, especially among American white people about *aryans*. Well I am a genuine *aryan* and I assure you that unlike some of these rude and barbaric white supremacists who somehow have the absurd idea that not I but *they* are *aryan*, the history of *aryans* in India is relatively peaceful. Perhaps in Friedrich Nietzsche's wild imagination *aryans* are barbaric savage horseriders who preyed upon peaceful civilised folk, but he was confusing various Teutonic tribes, Ostrogoths, who were sacking Rome. We, the actual *aryans* are not involved in sacking Rome. My ancestors were involved in building a *literate civilisation* from 1750 BC, and did not actually get excited about burning Library of Alexandria as Julius Caesar did or sacking Rome. Incidentally, I did visit Rome in 2000 and I adored it. Roman Civilisation is not as ancient as Vedic Civilisation in India, but it's still quite venerable.

I moved to the United States in 1987 and I am American. I was strongly influenced by *Victorian England* from very early age in Bengal, and am still strongly influenced by *Percy Bysshe Shelley* and have a good command of his works. This is not very alien to me either, because Vedic poetry has strong repercussion in Romanticism whether by direct influence or by diffusion I do not know. Although I do have some royal blood from the East, I am a strong believer in republicanism in political organisation and value Virtue and Character of individuals. In fact my work includes empirical validation of Aristotle's Virtue-Eudaimonia theory for moral virtues unrelated to Romantic Love but I have also followed Avicenna, the great Persian genius who was the father of medicine, and completed Aristotle's Virtue theory for individual *Life Satisfaction* that is universally valid. I have been promoting that the Human Race is a single race for many years and consider it a primitive superstitious time when people do not know this basic truth. You can

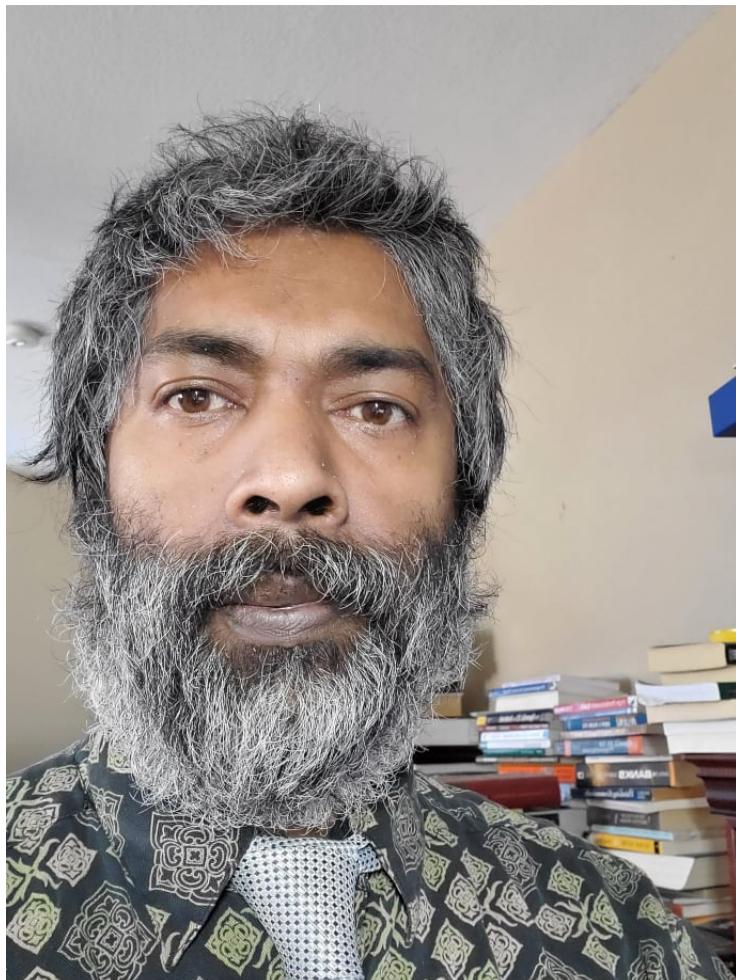
learn a great deal about *aryans* from good history textbooks—*aryans* are not Europeans at all and had been localised in Indian subcontinent. They are people like me. We are peaceful and Civilised people and do not have as much of an egregious barbaric history as the various horse-riding nomads who had preyed upon settled people in Central Asia.

But *Bill Gates* is a savage barbaric abomination who had invaded my blood meta and harmed me physically for political convictions that are not tolerable for any American. This harm produces physical pain in my body and makes it difficult for me to conduct daily life. I am not amused at all.

He does not believe in natural rights. I do not understand why the United States would not simply wipe him out. Natural Rights are strongly supported by Americans with support, at least in opinions roughly reaching 90%. Why is Bill Gates not destroyed and wiped out completely by the United States Government is a mystery to me. He does not belong in any Multi-Ethnic Classical Liberal Democratic Republic at all.

4. WHAT DO ARYANS LOOK LIKE EXACTLY?

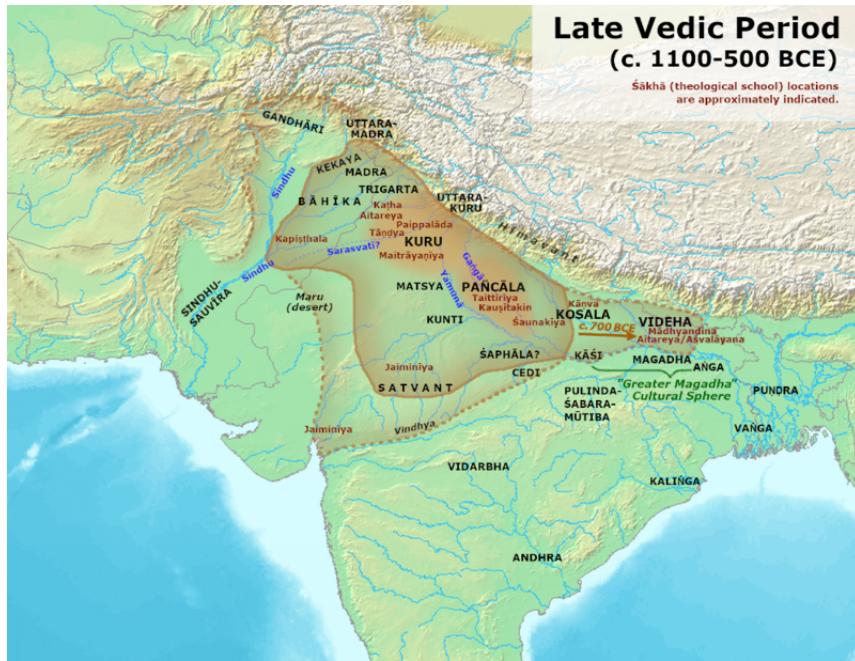
Well I am *aryan*. This is what I look like.



Aryans look like me. I have no idea when various Europeans decided they are aryan. You see it makes no sense to me why Europeans would suddenly have a fad that they are aryans. That's absurd. Let me first just tell you the Wikipedia etymology of *aryan* and then let me show you the historical distribution of aryans.

The term Arya was first rendered into a modern European language in 1771 as Aryens by French Indologist Abraham-Hyacinthe Anquetil-Duperron, who rightly compared the Greek arioi with the Avestan airya and the country name Iran. A German translation of Anquetil-Duperron's work led to the introduction of the term Arier in 1776. The Sanskrit word arya is rendered as 'noble' in William Jones' 1794 translation of the Indian Laws of Manu, and the English Aryan (originally spelt Arian) appeared a few decades later, first as an adjective in 1839, then as a noun in 1851.

Now let me show you the habitat of Ancient Aryans so you have a very crisp clear understanding, and these are my ancestors.



You have to look southeast to *Vanga* which is the original name for Bengal. Now my father named me *Zulfikar Moinuddin Ahmed* which is quite Arthurian in a way. *Zulfikar* is the name of the sword of Ali. And *Moinuddin* is the defender of the faith. I became Atheist in 1979 and stayed so till 2008. I am faithful today but a unique religion that is not Christianity, Islam, or Judaism. When I was young, I disliked my name because I was squeamish about blood and did not like violent things. But at the moment, I would be quite pleased if this vile knave and lifelong criminal charlatan *Bill Gates* were ruthlessly and mercilessly wiped out by the United States Government. The insolence of the malevolent little shit is outrageous.

5. UNITED STATES GOVERNMENT HAS BEEN WARNED MANY TIMES

I have warned United States Governement many times that (a) I have never been an employee of Bill Gates and (b) never in my entire life would I ever be employed by such a disgusting, low, filthy vile, pathologically lying, intellectually menial man like Bill Gates whose virtues are significantly worse than any pigeon. He is a vile scumbag without *any intellectual talent* who is a charlatan. I have asked him for sample of code to prove that he knows what he is talking about and encountered him only in meta. The disgusting slimy worthless miserable son of a bitch put \$2 billion with D. E. Shaw & Co. to make money off *my hard work* on Medium Frequency Strategy and then instead of ensuring that I am compensated for benefits he accrued for my work, he sabotaged my Finance career meta and forbade D. E. Shaw & Co. from paying me my \$120 million. United States of America will not even survive if you they do not totally wipe out the little shit and destroy his empire. They are getting on my nerves.

6. BILL GATES ROUTINELY USES BLACK MAGIC FOR IDIOTIC IDEAS OF "WHITE CONTROL"

Bill Gates might be a 'tycoon' or whatever, but I have never encountered a more despicable, low, illiterate and stupid uncultivated, hick, uncouth, disgusting, uneducated, lacking in taste and culture, ruffian and knave in my entire life.

His entire enterprise of white power control of the world would sink the world into total savagery and barbarism. He is *so unbelievably intellectually incapable, stupid, and devoid of any significant intelligence* that it is mind-boggling that such a combination of arrogance can coexist with intellectual vacuousness. He is totally intellectual failure. He is a 100% charlatan. He has no clue about who is doing good work and who is not doing good work and what their ethnicities are. Instead he has spent all his life pursuing power, and thinks, idiotically and counterfactually, that *ethnicity determines intellectual talent*. I wish it were so easy. I know, having known many many talented individuals with extraordinary gifts in many disciplines, that the things that determine intellectual gifts are totally orthogonal to ethnicity and have a great deal more to do with interest and focus and exhilaration of being able to see and understand something that – frankly – no one really gives much of a damn about except the person. Rare is the pursuant of truth and knowledge really regaled for his or her findings. Mostly it is a matter of private satisfaction. Bill Gates would not know anything about this because he has been a *lifelong snake oil salesman and intellectual charlatan*. Only a truly decrepit and intellectually worthless cat would, after Felix Hausdorff literally killed himself to avoid a train ride to Auschwitz, think that 'whites are superior' is a great intellectual miracle.

Get rid of this son of a bitch immediately United States Government. The world might still have mercy on you. Otherwise you are going to be facing enormously tough times in the future. No one respects a government that allows a White Order man to become a tycoon except a worthless government.

7. BILL GATES IS A BADDIE

This is no laughing matter. There are bad people in the world who are uniformly lawless, criminal, remorseless, malevolent, power-hungry, and total deceivers and malevolent people. Bill Gates is one of them and no American will be safe until he is totally destroyed and cast out of Civilisation. He is a *baddie*. He needs to be totally destroyed, dispossessed, and the American people will be better off, safer, happier. I don't care what tycoon of fycoon or what people think of him.

Bill Gates is a *baddie*. And *baddies* must be eliminated at all costs so Civilisation can progress in the right direction.

8. BILL GATES IS A DIPSHIT IGNORANT ILLITERATE HICK MORON WITH EVIL SAVAGE BARBARIC ABOMINABLE TENDENCIES

Bill Gates has the habit of denigrating serious work as 'trivia trivia'. He is a stupid ignorant illiterate hick uncultivated peasant son of a bitch who acquired US War Power and other important elements of United States Government and cuts up people's eyes and applies power claiming White Right. He is a total stupid illiterate dipshit moron without an iota of intellectual ability at all. I am 100% certain of this. He believes United State *won* the Vietnam War. He believes that white people's happiness is inversely correlated with happiness of nonwhites and even

after I posted 25% correlation between white people and black people's happiness levels in England he does not seem to have any idea that he is a total illiterate hick idiot.

He thinks that repeatedly calling serious work of mine – that made him money with D. E. Shaw & Co. and for which he forbade my \$120 million income – *trivia trivia* is compelling to people for his great intellectual caliber. Obviously he's a total charlatan without any integrity either in personal morals or in intellectual scholarship.

If it were truly possible for people to have this bratty stupid mindset that repeating *trivia* would prove great intellectual acumen, then Lars Hörmander, one of the most talented analysts of twentieth century would not have written four volumes for *The Analysis Of Linear Partial Differential Operators* with arcane and difficult material. He could have just declared the whole thing *trivia*.

This man Bill Gates has intellectual level not even of high school level. His denial of natural rights is not from any deep insight but simply having total failure in high school American history and government courses. Perhaps he has fooled the American people and senior government officials with his dismissive style but he does not fool me. This man is a charlatan through and through who is definitely not gifted intellectually.

9. I HAVE GREAT HIGH SCHOOL RECORD OF AMERICAN HISTORY AND GOVERNMENT

I took AP courses in American History and Government in John Adams High School 1987-1991 and graduated as Valedictorian and attended Princeton 1991-1995. I did not take many political philosophy courses at Princeton but I had very good friends there like *Waheed Hussein* who passed away last year who was tenured at Wharton Business School at University of Pennsylvania and others who were talented in political philosophy. I am quite interested now in political philosophy because I am interested in the well-being of my beloved people the *human race*. Classical Liberal political tradition has had some tremendous successes. United States Declaration of Independence Preamble, as most of my readers know, came out of deep rumination on Enlightenment philosophical breakthroughs about legitimate government. My interest here are some of the limits of Classical Liberal thought. I am extremely interested in the spectacular insight that all men are (a) created equal for which I have extremely strong new arguments based on molecular genetics, but also problems like (b) failure of marriages across the world as legal powers are too focused on individual rights and produce situations where the law goes against many fundamental social institutions. The failure of marriages will have devastating long term consequences globally and in part this is due to limitations of Classical Liberal political philosophy that is too focused on individual rights.

Now these are interesting questions, but unfortunately I am discovering that United States Government does not even cater to securing individual rights – especially mine– when a totally malevolent stupid moronic charlatan with dystopian racial order plans and a lifelong habit of huckstering and lying pathologically with fictions about his own 'philanthropy' assaults my Life, Liberty and pursuit of Happiness and collecting \$1.1 trillion in taxes from Americans, the United States Government sends FBI to humiliate me in front of family members pretending that I

am the criminal and not this wretched miserable slimy good-for-nothing worthless racial murderer *Bill Gates*. What has he done? My achievements are millions of times more important than his paltry sales of inferior software products.

I am absolutely sure he is too stupid to even understand natural rights theory. It's not for college dropouts who are hick peasant-born charlatans exactly.

10. WARNING TO ALL BILL GATES FLUNKIES IN MY META

Bill Gates dream works of white supremacists paradise is about to come to a calamitous end. Be warned. Zulf is displeased. Find some safe haven, because Zulf is not impressed with Bill Gates. Bill Gates will not be able to sustain you all. Find some other venue. We need this man and his empire totally destroyed.

11. ON ASSESSMENT OF MY MATHEMATICAL ANALYSIS

Well I did not keep track of the number of exams I have completed already. Fall 2016 might be my tenth effort roughly. So I have already shown that I am quite capable of operating at the level of Stanford Ph.D. Quals level in mathematical analysis. That is not in doubt. I believe that any reasonable judge who looks at my entire ouvre of these exams will agree that I am quite at the level of mathematical ability for Ph.D. Analysis.

Much more important here is my campaign against Bill Gates. I think he is a grave threat not only to me, for he has employed illegitimate powers against myself including (a) US War Power against my Body which is prohibited even against Prisoners of War by Nuremberg trials, (b) US Industrial Power to harm my physical flesh against all regulations and laws of the nation and the world, (c) White Racial Power cutting into my Blood Meta prohibited by White Law and Christian Law as well as United States Law, and since I am an Indian Ethnic, the United States Government will face serious friction with India as there are treaties and expected norms for treatment of Indians and Asian immigrant that the world legislative bodies require from the United States Government. United States Government has instead accused me frivolously and unrealistically as posing a physical security threat to Bill Gates instead of dealing with the actual problem and I still face threat of incarceration by Texas Judges who are unaware that Bill Gate has been a vile hard-core mass murderer by illicit means for the past four decades and considers it his 'white right' to harm non-whites at will and murder and kill people as well by powers that he had acquired illegitimately.

Furthermore I strongly recommend that Stanford University and others carefully assess all his claims about his own abilities. I have found the man to be significantly deficient in intellectual abilities. He is totally inept in Mathematics, Science, Finance, and also Business decisions and has not even high school level education in most of these matters and is a total charlatan. He must be exposed for his continual lies and deception and expelled from all serious decision-making. He should not even be in control of a pond full of tadpoles and he is an extreme threat to non-white people's natural rights and career in America. He should be eliminated with extreme lethal force by government authorities immediately. He is significantly more dangerous than the Auschwitz butcher and holds zealously to a creed that is significantly more dangerous than Nazis of Germany in the 1930s.

12. CHALLENGE TO BILL GATES AND WHITE ORDER CABAL

If you really think White People are superior etc. Why don't you show me the statistics of white people who can do Stanford Mathematics Ph.D. Analysis Problems better than me?

It's not enough to produce a handful. There are 200 million White Americans. My IQ is not extraordinary but around 135-40. That's around 99th Percentile of American White IQ. If Whites were superior in this simpleminded way as the charlatan hick huckster and malevolent son of a bitch Bill Gates claims, then around 50 million white people ought to be able to successfully do these Stanford Mathematics Ph.D. Analysis Problems. Where are they?

I will give you a realistic assessment. Not even 1,000 white people out of 200 million people can even do a few of these problems without significant investment or even at all. Stanford Analysis Ph.D. Quals are fairly challenging. I am doing them. There is no rationality in these white supremacist fantasies.

What is important is not ethnicity in Mathematical abilities but other things such as interest and effort and familiarity and development of mathematical senses over many years. Bill Gates and his cabal pretend that white ethnicity provides magical abilities in Mathematics. They do not.

Also I am an *immortal genius* in Theoretical Physics as my four-sphere theory is *infinitely superior science* than Albert Einstein, Erwin Schrödinger, and Paul Dirac. I did not reach my great genius in scientific matter by any magic of Vedic Indian magical charms. I put in enormous sacrifices and suffered greatly for my convictions.

These White Order people are dumber than Stimpy.

13. ZULF RECORDS STRONG SKEPTICISM ABOUT BILL GATES IQ AND SAT SCORES

My IQ is 135-40 and it is in line with my official record of SAT score 1450 that Stanford University can easily verify. I don't go around claiming all sorts of rubbish about superiority based on it. I attended Princeton University where many people had higher SAT scores and had higher IQ scores.

I would like to formally request that not only Stanford but all institutions of higher learning get a severe objective test to determine how this charlatan Bill Gates managed to retain *any credibility* from early 1970s based on totally fabricated IQ scores of 160 and SAT score of 1590 both of which are total lies. I have dealt with the mind of this scrub and his IQ is not 160 and his SAT score was definitely not 1590. People with intelligence enough to have those statistics do not say things like "Hammurabi and all rulers of the past were white" and "Scientific theories are arbitrary" and "Egypt came before Mesopotamia" and "Edgar Allan Poe was better than Rainer Maria Rilke" and many many other idiotic things.

Stanford University *publicly shame this son of a bitch who is a total scumbag and a charlatan*. He is not any sort of intellectual luminary at all but just another white supremacist ignorant hick scrub who does not deserve any regard from any civilised educated person at all.

14. MY EFFORTS TO DISCREDIT AND EXPOSE BILL GATES IS EXTREMELY SERIOUS

Bill Gates has not just obstructed my money, \$620 million, but he has used illegitimate powers to invade my deep interior against the protests to United States Government who warned United States Government that breach of Blood Meta is evidence of *criminal intent* and that India does not allow it in their own country. They are quiet now but all of Asia will respond harshly in the end if United States does not handle this problem. My mother is sick in Bengal, and Daniel Stroock was not good to me at all and harmed my career in Mathematics in Finance. My family is looking to me for income, and I am 49 years old. These things add up to extremely serious motivation to totally expose Bill Gates, collapse his empire altogether and destroy his Character and reputation permanently.

There is also an issue of Conscience. I am one victim of his but I know his plans to harm all non-white people in America. That is the burden of Conscience for the well-being of 100 million Americans and seven billion around the world. He must be totally destroyed and not merely reprimanded. I am not going to do any vigilante nonsense. I want American Society to be fully familiar with the horrific, heinous, evil, murderous, savage, criminal, patholical lying charlatan that are the *true colours* of this *Bill Gates* and exterminate him in public for his malevolent crimes of the past four decades. These sorts of parasites and pathogens do not belong even alive, let alone be prominent in business. His business decisions are highly suspect. He is not a Civilised gentleman. He is not educated and does not follow any norms that I know about, and I am extremely well-educated and can give lectures at Stanford on Romanticism and Modernism in Literature, on Annales School of historiography, on the philosophical schools of pre-Socratics. This man, I can assure you with 100% confidence is a total fraud, a charlatan, a huckster and con man with an immorality in his activities that is unimaginable even for Felix Krull. He has the personality of a cross between Sauron of *Lord of the Rings* and Palpatine of *Star Wars* and does not belong in American Civilisation at all. He is significantly worse than *Mumm-Ra* of *Thundercats* who would be considered rather charming next to him.

15. IT WAS BILL GATES WHO ASSAULTED ME FIRST I AM RETALIATING

Bill Gates took advantage of his powers to target my life, liberty, health, financial income, and American Dream using illegitimate powers with brazen disregard for lines drawn for legitimate action – especially against someone who (a) has given you something that made money – i.e. my Medium Frequency Alpha Strategy where he put in \$2 billion with D. E. Shaw, and (b) someone who he does not know personally. I was extremely badly hurt and was wondering about what was going on. I was even incarcerated for a week with an FBI visit with frivolous charges that I represented a physical threat to Bill Gates. I have no record of even using a fire-arm in a practice range. I don't like firearms at all.

My retaliation employs my strengths versus him. My Character and Honesty, cultivation, education, work is world class, and I am an immortal scientific genius, so I am not just doing Stanford Mathematics Ph.D. Problems for the sake of entertainment. I am looking for public proof of my intellectual talents, and then using my advantages in education, cultivation, mathematical ability and so on, I expect to expose the charlatan and totally devastate and collapse his entire empire and

his reputation. I am 100% sure that this man was a con man and a fraud and a charlatan all his life from 1955 and he is a criminal murderer and robber and not a legitimate businessman. I do not believe that any claim about his intellectual genius has even remote truth to them. He is a total snake oil salesman and is extremely uncouth, tasteless, and without even a tiny spark of intellectual talent. I will not allow his insolence to go unpunished.

Let me remind you of my measured virtues ranking. I think it is a *great service to humanity* to totally destroy Bill Gates reputation so that it will not recover at all in five centuries in every corner of Earth and he will live on only as a cautionary moral tale of what happens to criminal charlatans who hoodwinked the whole world and damage people who are actually gifted intellectually and have high moral character.

16. UNITED STATES GOVERNMENT KNEW THAT BILL GATES WAS HARMING ME

United States Government knew all along that Bill Gates was harming me but the wretched motherfuckers did not want to 'hamper' Bill Gates. What the fuck do they think their mother fucking job is? They exist to secure American people's natural rights. I will definitely plan to extract \$1-2 trillion from the United States Government for total failure to do what is their purpose. Why did they allow a criminal murderer from harming me, an American with USCIS# 046-077-179. I want the whole goddam United States Government dissolved for not thinking that it was appropriate to 'hamper' a racial murderer and lifelong hardcore criminal from harming an American man. What do they think they get paid to do exactly?

17. REINFORCEMENT FOR STANFORD'S SUPPORT ON THE GREAT PROJECT OF TOTALLY DESTROYING BILL GATES AND SHAMING HIM IN PUBLIC

Bill Gates is a charlatan and a con man and a snake oil salesman who is clogging up US Industry. He has malevolent plans for a White Racial Order which is dystopian and unacceptable. He has blockaded \$620 million of legitimate income. He is zealously for destroying opportunity for success in American Dream for hundreds of millions of non-whites.

Just as it is a positive benefit when a cruel tyrant who is evil and destructive is a benefit to the community, America will be well served by totally destroying his reputation, exposing him as a total charlatan without any intellectual talent whatsoever, and excommunicating him from American Civilisation. I need this done just to get past my hurdles to the American Dream. I have no option but to pursue this.

I would like to entice the entire Stanford University Community to see the situation as clearly as I do. I know this man much better than I wanted to know him. I have known many people in my life, and no one remotely has produced in me a strong impulse to take up arms against the filthy slimy criminal contemptible lying conniving deceptive malevolent totally lacking in any decency or virtue, rotten to the very core, man as this Bill Gates is. He controls around \$1 trillion in US Industry. This is a great travesty for the American people because these slimy cunts without any redeeming qualities, who lie pathologically while planning rotten racial dominance world orders, totally devaluing the half a million lives lost in the Second World War that Americans fought to ensure freedom reigns on Earth.

Rank	Virtue	Class
1	Love	(Humanity)
2	Creativity	(Wisdom)
3	Honesty	(Courage)
4	Curiosity	(Wisdom)
5	Spirituality	(Transcendence)
6	Hope	(Transcendence)
7	Bravery	(Courage)
8	Humor	(Transcendence)
9	Forgiveness	(Temperance)
10	Perspective	(Wisdom)
11	LoveOfLearning	(Wisdom)
12	AppreciationOfBeautyAndExcellence	(Transcendence)
13	SocialIntelligence	(Humanity)
14	Zest	(Courage)
15	Gratitude	(Transcendence)
16	Self-Regulation	(Transcendence)
17	Fairness	(Justice)
18	Perserverence	(Courage)
19	Judgment	(Wisdom)
20	Leadership	(Justice)
21	Kindness	(Humanity)
22	Prudence	(Temperance)
23	Teamwork	(Justice)
24	Humility	(Temperance)

It does not matter to me at all what the cost is for *totally destroying Bill Gates* and ending his criminal activities on Earth. Wiping him out is a positive necessity for the survival of the American Civilisation.

I implore all people of the Stanford Community to stand up for justice, for natural rights, for true and good benevolence that good people here in America and around the world struggle for, for a better world, for greater justice, for community of people of good Character. Time for these malevolent disgusting criminals to prance around with money earned from harm and evil is at an end. These people do not deserve success but *excommunication and shame*. They deserve to be cast out of Civilisation.

18. WHAT ARE ZULF'S AIMS IN THESE STANFORD PH.D. QUALS PROBLEMS?

My main motivation to doing the Stanford Mathematics Analysis Ph.D. Qualifying Exams is to gain deeper understanding of analysis *for a particular purpose*. I regret that I am not interested in general research in Analysis. I am interested only in *that analysis that will matter for mathematical physics in four-sphere theory context*. The most general objects in four-sphere theory will be distributional spinor fields on the four-sphere. I have publicised my decision that these ought to have the symbol

$$\mathcal{D}'(\Sigma S^4)$$

This symbol matches symbols from two strong traditions of established Mathematics. On the one hand, the symbol \mathbf{D}' is from Laurent Schwartz development of

distribution theory from the late 1940s. In Analysis these have had great development when the base space is \mathbf{R} and the test functions are $\mathbf{D}(\mathbf{R}) = C_c^\infty(\mathbf{R})$. My base space are smooth spinor fields on the scaled four-sphere $S^4(R)$ where $R = 3075.69$ Mpc. This is not a mathematical decision. My four-sphere theory is fundamental physical theory that is revolutionary in the sense that it *displaces quantum field theory, general relativity, and expansionary cosmology* in Science. The theory of spinor fields comes from another strong tradition including the work of Michael Atiyah, Isadore M. Singer, Arnold Shapiro and others. Michael Atiyah and I. M. Singer, like Laurent Schwartz, are Fields Medalists in mathematics.

The analysis in four-sphere theory is analogous to Fourier analysis on S^1 which is well-established since 1811 when Jean-Baptiste Joseph Fourier first conjectured that arbitrary periodic functions will have linear expansions in exponentials e^{inx} . The analogue for S^n is also classical and was worked out first by Gustav Ferdinand Mehler in 1866. I use Christian Bär's theorems to simplify matters and see immediately that

$$L^2(\Sigma S^4) = \bigoplus_{k=1}^{16} \sigma_k L^2(S^4)$$

and this is based on a serious theorem of Christian Bär, and not a formal conjecture.

All mathematical physics in four-sphere theory will have analysis not with base space \mathbf{R}^3 whose non-compactness is the source of a great deal of problems in the past centuries, but based on Dirac operator (defined by Atiyah-Singer and studied for riemannian spin manifolds) and spinor fields. Further detailed information about spinor fields can be found in LM.

I felt that my level of broad mastery of Analysis was inadequate to the task of founding the Final Theory of Macroscopic Science, which needs to be on deep ground and must serve humanity for millions of years in the future.

My perspective and interests are broader than Ph.D. Mathematics students at Stanford who are preparing for careers in Mathematical Research. I am not interested in analysis research questions in general. I am *only* and *solely* concerned with the founding of a great and final mathematical theory of Nature that will stand for millions of years as unshakable absolute knowledge of Nature, unchanging and unchallengeable. And this requires depth of analytical understanding.

19. SEEKING TENURED FULL PROFESSORSHIP AT STANFORD

I am seeking immediate tenured full professorship at Stanford University. I have made important advances in Finance, Fundamental Physics, and Human Nature empirical work. They are worthy of a tenured professorship at Stanford or Harvard.

What I want to do is settle down in Mission District in San Francisco and with an Adjunct Professorship and funding, expand a company I have registered, Thyself Inc. Bill Gates has obstructed totally \$620 million in legitimate income from Finance from D. E. Shaw & Co. and Madam Christine Lagarde of ECB. I need that money, and plan to work not only on some of the Mathematical Physics work that could be done to further develop four-sphere theory but also Quantitative Positive Psychology and Global Individual Debt. These are important problems in which I could make progress, and these are best done by formation of entrepreneurial ventures.

I completed Fall 2015 and am will begin examining Fall 2016 problems.

20. PROBLEM I.1

Suppose X is a Banach space and $A \in L(X)$. Show that the spectrum is subset of \mathbf{C} that is (a) closed, and (b) bounded.

Since $A \in L(X)$ we have $\|A\| < \infty$. Now

$$R_z(A) = \frac{1}{z - A} = \frac{1}{z} \sum_{k=0}^{\infty} (A/z)^k$$

and for $|z| > \|A\|$ the series is norm-convergent. Therefore $\mathbf{C} - B(0, \|A\|) \subset \rho(A)$ the resolvent set. This shows $\sigma(A) \subset B(0, \|A\|)$ and therefore bounded. Since $R_z(A)$ is analytic in $z \in \mathbf{C}$, if $z_0 \in \rho(A)$ then by power series expansion we will find $\epsilon > 0$ such that $R_z(A)$ is bounded for $z \in B(z_0, \epsilon)$ so $\rho(A)$ is open.

21. PROBLEM I.2

Show that there is no distribution $u \in \mathcal{S}'(\mathbf{R})$ such that for all $\phi \in \mathcal{S}(\mathbf{R})$ with support in $(0, \infty)$

$$u(\phi) = \int e^{1/x} \phi(x) dx$$

First, for any $k \geq 0$ we have

$$x^k e^{1/x} = x^k \sum_{r=0}^{\infty} \frac{1}{n!} x^{-r}$$

which diverges to ∞ as $x \rightarrow 0$. Then we have for non-negative ϕ with supported on $(0, \infty)$

$$|u(\phi)| \geq \int_0^{\delta} e^{1/x} \phi(x) dx \geq \int_0^{\delta} \sum_{r=1}^{\infty} \frac{1}{n!} x^{-r} \phi(x) dx$$

The right side will diverge unless $\partial^k \phi(0) = 0$ for all k .

22. PROBLEM I.3

An function $g : \mathbf{R}^n \rightarrow \mathbf{R}$ is upper semi-continuous if for every $x \in \mathbf{R}^n$,

$$g(x) \geq \limsup_{y \rightarrow x} g(y)$$

(a) Suppose μ is a Borel measure on \mathbf{R}^n such that every bounded set $A \subset \mathbf{R}^n$ has $\mu(A) < \infty$. For $\rho > 0$ fixed, let

$$B_\rho(x) = \{y : |y - x| < \rho\}$$

Let

$$g(x) = \mu(\bar{B}_\rho(x))$$

Show that g is upper semicontinuous.

(b) Give an example of a Borel measure such that g is not continuous.

Let's start with (b). Put a delta mass right at the origin in \mathbf{R}^2 . We have $\mu(A) = 0$ unless $(0, 0) \in A$. Let $\rho = 1$. The function $g(x)$ is just the indicator of $\bar{B}_1((0, 0))$. It is not continuous at the boundary unit circle where it drops to zero.

Now we address (a). I do not know the answer but my hope is that the Fatou's Lemma could lead to a result here. I will explore in a relaxed manner which is the only way I reach anywhere. Wise men say only fools rush in but aaayeee can't help falling in love with youuuu. Da da da.

Now we have to consider the situation where $y_n \rightarrow x$. Let $f_n = 1_{B_r(y_n)}$. That's my preferred notation for the indicator function. You know I don't know why χ was ever used for the indicator of a set. It makes everything seem Greek to people who are not used to mathematics, and that's not good. It gives the aura that someone honest and decent is trying to bamboozle gullible people.

Anyway, $f_n \rightarrow f$ pointwise. Fatou's lemma says

$$\int f_n \leq \liminf \int f_n$$

We let $f_n = -1_{B_r(y_n)}$ and get

$$\limsup_n \mu(\bar{B}_r(y_n)) \leq \mu(\bar{B}_r(x))$$

This proves upper semicontinuity. Well to be honest, I would not have looked at a function like $x \rightarrow \mu(\bar{B}_r(x))$ and be able to see immediately that it is upper semicontinuous. This is fairly technical and if the problem said 'prove that it is lower semicontinuous' I would be trying to prove that instead. Here I am fortunate that Fatou's Lemma is what drives this *upper semicontinuity*. It's not really mathematical intuition for me, but just memory that either \liminf or \sup was in Fatou's Lemma and I thought I'd just do some hookey-dookey and manage to get the conclusion.

23. PROBLEM I.4

Let $H = L^2(\mathbf{R}, e^{-x^2} dx)$ and $\phi_n(x) = x^n$. Obviously $\phi_n \in H$ and we assume this.

(a) Let $e_\xi(x) = e^{-ix\xi}$ then prove that

$$\sum \frac{(i\xi)^n}{n!} \phi_n$$

converges to $e_\xi(x) \in H$ in the norm-topology.

(b) Prove that if $\langle \phi_n, \psi \rangle = 0$ for all ϕ_n then $\psi = 0$.

(c) Prove there exists ψ_0, \dots, ψ_n that are orthonormal so that

$$\text{Span}\{\psi_0, \dots, \psi_n\} = \text{Span}\{\phi_0, \dots, \phi_n\}$$

This one is not hard for me, probably because I had used these sorts of weighted L^2 spaces in my undergraduate thesis following some techniques of Lars Hörmander for analysing plurisubharmonic functions and such. Let's start with (c). Here we are just doing Gram-Schmidt orthogonalisation for $\text{Span}\{\psi_0, \dots, \psi_n\}$ starting with ϕ_0, \dots, ϕ_n . I won't comment more on this because it is evident that H is a Hilbert space and Gram-Schmidt orthogonalisation is standard freshman linear algebra. What I will say is that Peter Gram and Erhardt Schmidt deserve a great deal of credit for the modern world and are not given that credit. It is hard to believe that Gram-Schmidt orthogonalisation was so late in history of Mathematics. There is a claim that Laplace had used the procedure before in 1816.

When Erhard Schmidt presented the formulae on p. 442 of his "Zur Theorie der linearen und nichtlinearen Integralgleichungen. I. Teil: Entwicklung willkürlicher Funktionen nach Systemen vorgeschriftener," Math. Ann., 63 (1907), 433-476 he said that essentially the same formulae were in J. P. Gram's "Ueber die Entwicklung reeller Funktionen in Reihen mittelst der Methode der kleinsten Quadrate,"

Jrnl. für die reine und angewandte Math. (1883), 94, 71-73. Modern writers, however, distinguish the two procedures, sometimes using the term “Gram-Schmidt” for the Schmidt form and “modified Gram-Schmidt” for the Gram version. R. W. Farebrother Linear Least Squares Computations (1988) gives this information and proposes that the Gram form be re-named “Laplace’s method” as it was already given in the First Supplement (1816) of Laplace’s Théorie Analytique des Probabilités, p. 497ff.

This is quite interesting to me. [1]. It is just remarkable to me that inner products were not really a clear part of Mathematics throughout nineteenth century. We really owe David Hilbert’s leadership and the work of Peter Gram and Erhardt Schmidt the whole effort for the orthogonality efforts. I can’t even imagine a world where orthogonality is not part of my natural intuition so ingrained that I looked at the features of physics for a while in 2008 and deduced that quantisation of energy is due to compact geometry of absolute space with extremely strong conviction.

Now let’s look at (a). Let

$$C_n^2 = \int x^{2n} e^{-x^2} dx$$

For the finite sum

$$f_n(x) = \sum_{k=0}^n \frac{(i\xi)^k}{k!} x^k$$

we get

$$\|f_n - f_{n-1}\| = \left\| \frac{(i\xi)^n}{n!} x^n \right\| = \frac{|\xi|^n}{n!} C_n$$

So that’s good, as it gives us an opportunity to prove norm convergence if we can show

$$\sum_{k=0}^{\infty} \frac{|x_k|^k}{k!} C_k$$

converges. We will need to examine the C_k in a bit more detail to do this.

Let us examine (b). We will use the nice technique in the hint here and write the Fourier transform of $e^{-x^2} \phi$ as

$$\begin{aligned} \int e^{-ix\xi - x^2} \phi(x) dx &= \int \sum_n \frac{(i\xi)^n}{n!} e^{-x^2} \phi_n(x) \phi(x) dx \\ &= \sum_n \frac{(i\xi)^n}{n!} \int e^{-x^2} \phi_n(x) \phi(x) dx \\ &= \sum_n \frac{(i\xi)^n}{n!} \langle \phi_n, \phi \rangle_H \\ &= 0 \end{aligned}$$

Since the Fourier transform is an isometry on $L^2(\mathbf{R}, dx)$ we conclude that $e^{-x^2} \phi = 0$ and then just multiply by e^{x^2} to get $\phi = 0$.

24. PROBLEM II.5

This is a version of the Hermann Weyl equidistribution theorem. I am actually interested in understanding this out of personal interest a bit better. This theorem of the ergodicity of the translations on the circle by an irrational number is something that Peter Sarnak taught us in 1993.

There is really no rush. I might take a few more days to do this problem set, and I want to really spend some time understanding the theorem. It's nice to have a sharper understanding with mathematical precision.

Henry P. McKean's beautiful book on Fourier Series and integrals tells the story as follows. A basic postulate of statistical mechanics is the so-called "ergodic principle" of Boltzmann and Gibbs, which says the time average of mechanical quantity should be the same as its phase average.

Hermann Weyl in 1916 had considered a simple model of the circle $0 \leq x \leq 1$ and for $\alpha \in (0, 1)$ and consider rotation $x \mapsto x + \alpha$ modulo 1. For $\phi \in C(S^1)$ consider

$$\lim_{n \rightarrow \infty} n^{-1} \sum k = 0^{n-1} \phi(x_k)$$

The method used by Henry McKean considers the time average for $e_m(x) = e^{imx}$. For the general phase function $f \in C(S^1)$ use Feér's theorem to approximate f uniformly by a trigonometric polynomial P and check the bound

$$\limsup_n |n^{-1} \sum f(x_k) - \int f|$$

after removing P and using the result for these, we have error $2\|f - P\|_\infty$. In various ways, this is the right proof.

I want to just repeat how much I love Henry P. McKean's book. It might be accessible for undergraduates but there are few mathematicians whose *purity and clarity in mathematics* is more clear than Professor McKean's. The man's analytic genius is so profound that it's just marvelous to behold the crystal clarity. Truly inspiring and all the examples are deep in mathematics. It's hard to appreciate that all of these beautiful ideas once upon a time, not too long ago did not exist in the human world at all, they seem so eternal and timeless. But this is precisely the wonder. Before Hermann Weyl proved the equidistribution theorem in 1916, the entire world had no inkling. Suddenly from the world of eternal truth, profound truths, beautiful and clear appeared in our world. It's so surprising to me that Weyl was not able to discover four-sphere theory. In various ways, he ought to have. But this was left to myself. I should not protest too much. It is fate, and I ought to show some gratitude to eternal inscrutable divine forces that allowed it. It's profoundly mysterious.

The Henry P. McKean's proof of the Weyl Equidistribution result allows us to assume the following:

$$n^{-1} \sum_k \phi(x + k\alpha) \rightarrow \int_0^1 \phi(y) dy$$

for every $x \in [0, 1]$ and the average is just $\phi(x)$ by hypothesis.

(b) Suppose $p \in C^\infty(S^1)$. Given an irrational number α consider the equation

$$(1) \quad g(x + \alpha) - g(x) = p(x)$$

with

$$\int_0^1 p(x)dx = 0.$$

Give conditions on α to ensure that $g \in C^1(S^1)$. Assume that g is measurable and integrable.

The condition (1) needs to be clarified as a condition for *all* $x \in S^1$. With this clarification, we consider the difference

$$g(x + k\alpha) - g(x)$$

for various $k \geq 0$. The idea here is that for some $k \geq 0$ we will have $k\alpha \bmod 1$ be arbitrarily close to zero.

Let us recall definition of continuity for $g'(x)$. Given any $\varepsilon > 0$ there exists $\delta > 0$ such that

$$|g'(y) - g'(x)| < \varepsilon$$

whenever

$$|y - x| < \delta$$

Now let us work backward from this condition. Choose $k \geq 0$ such that $k\alpha < \varepsilon$. This is an *exploratory choice* in order to seek an answer.

We have

$$g(x + k\alpha) - g(x) = g(x + k\alpha) - g(x - (k-1)\alpha) + g(x - (k-1)\alpha) - \cdots - g(x)$$

This is the next step,

$$g(x + k\alpha) - g(x) = \sum_{j=0}^{k-1} g(x + (j+1)\alpha) - g(x + j\alpha)$$

This gives us

$$g(x + k\alpha) - g(x) = \sum_{j=1}^{k-1} p(x + (j-1)\alpha)$$

This is not so bad. What we need now is not just a fixed k but a sequence of k_m with $k_m \rightarrow \infty$ with the property that $k_m\alpha \rightarrow 0$.

25. BILL GATES HAS NO TALENT IN SCIENCE, MATHEMATICS, FINANCE, BUSINESS, CODING

This is a more serious claim. Daniel Stroock has mathematical genius. Whatever his shortcomings in his handling of my case, and he was tremendously harmful to my career, but I am an honest and fair man. His analytical skills and talent are good, and he is gifted in Mathematics.

However much more serious discovery of mine is for *Bill Gates*. This man I know (from meta engagement for more than a year). He is a total charlatan and is totally without any acumen or mathematical gifts even at the high school level whatsoever. I have tutored disadvantaged school children as a volunteer from my Princeton years. He is strictly worse than the disadvantaged children in Trenton New Jersey in Mathematics. He is totally without talent in Science because he does not respect truth at all. He is unable to do a simple inference from a Gaussian distribution. He has *absolutely no talent whatsoever* in science. His White Order play or whatever is based on the most savage barbaric idiotic illiterate moronic opinions. He says Hammurabi was white, and deflects challenges to do some of

the Stanford Mathematics Ph.D. Problems to show his skills. He is a total charlatan about computer software engineering. I know because I have held senior level software engineering positions from 1996 already for Robert Reich's Ecosystems Inc. I am extremely senior level in my software and coding discipline. He has no significant abilities and has absolutely incompetent ideas. For example, he recommended that he prefers C code for products involving web interface and MongoDB backend. These are best accomplished with Node.js and Meteor. He lies and claims involvement in Mesos development. He repeats 'trivia' instead of actually showing his ability in coding or anything else. He was born a psychopath and he succeeded by systematically invading other people's personal interior with destructive powers with the aim of killing them and taking their resources and money and destroying their health with *forbidden European Black Magic Power* from the thirteenth century. He plays around with destructive harmful power all day and all night and has absolutely no redeeming qualities and his morals are significantly worse than mass murderers with sexual predatory habits. His mere existence is a severe threat to the American People and United States Government must answer for their codding of Bill Gates very soon to the American People. This country should not be allowed to exist when the government does not respect United States Independence of Declaration Preamble and does not totally wipe out malevolent criminal cunts like Bill Gates with lethal force. He is an infinitely worse threat than the 11,200 people killed by our drones in Asia without trial by jury, without presumption of innocence before prove guilty, and United States Government is responsible for the horrors inflicted by these hard-core malevolent total deceptive charlatans who prey on the American people with full support of our government.

26. PROBLEM II.4

Suppose X, Z, Y, V are all Banach spaces. Suppose $X \subset Z$ and $Y \subset V$ with continuous inclusions.

Suppose $P : Z \rightarrow V$ is continuous. And has the property that if $Pu \in Y$ then $u \in X$. Show that there is a C such that

$$\|u\|_X \leq C(\|Pu\|_Y + \|u\|_Z)$$

26.1. Exploratory Analysis. We have $Pu \in Y$ implies $u \in X$. These are not Hilbert spaces, so we don't have orthogonality to assist here.

Regardless, let us examine what is going on. If $u \in Z$ and $u \notin X$ then $Pu \notin Y$. That is really the heart of the matter.

Let's label the inclusions $j_X : X \rightarrow Z$ and $j_Y : Y \rightarrow V$. We have

$$\|j_X u\|_Z \leq C_1 \|u\|_X$$

Let us define the map

$$Q : X \oplus Z \rightarrow Y \oplus Z$$

by

$$Q(x, y) = (Px, y)$$

This does not solve any problems at all, but this will give us the bound

$$\|Q(x, y)\| \leq C_1(\|x\|_X + \|y\|_Z)$$

This is an exploratory step to understand the structure of the problem. If we found that Q is invertible we would have something close to the inequality we desire.

We don't know the right solution yet, but this is progress. I have found through many years of experience that it takes some time to get used to the structure of the problem and some exploration leads to success. So I will mark this as progress and keep the problem open. Only in very simple textbook cases do mathematical issues have a resolution at all.

27. PROBLEM II.2

Ah, the *compactness* of a Hilbert-Schmidt operator. We are given $K \in L^2(\mathbf{R}^{2n})$ and

$$Tf(x) = \int K(x, y)f(y)dy$$

and we have to show that T is compact. Let's start with boundedness.

$$|Tf(x)|^2 \leq (\int |K(x, y)|^2 dy) \|f\|_2^2$$

by Cauchy-Schwarz. Then integrate both sides to get boundedness of T in $L(L^2(\mathbf{R}^n))$.

Compactness, huh? Well let's see. If f_n all have $\|f_n\| \leq B$ we need to find a convergent subsequence of $\{Tf_n\}$.

I will do something probably unorthodox on this problem. I will try to establish a principle instead of seeking an efficient conclusion. The principle is one that has been brewing in my mind over the past month or two as I have been doing some of these Stanford Ph.D. Quals.

The principle is this. If you ever have *any sort of compactness of functions* then the actual mechanism underneath is the same as Arzela-Ascoli theorem, i.e. the use of Heine-Borel theorem for \mathbf{R}^N after localising in a compact set. In this case I will pay attention to the x -dependence of $K(x, y)$ and attempt to arrange a compact interval $[a, b]$ for x and analyse Tf_n only on this interval. The hope is to unravel K in such a way that we can localise the problem for a finite set $x_1, \dots, x_n \in [a, b]$ to obtain the subsequence.

27.1. Reducing To A Bounded Interval. Let us fix $y \in \mathbf{R}^n$ and consider the function

$$k_0(x) = K(x, y)$$

This is an element of $L^2(\mathbf{R}^n)$ for Lebesgue-almost any $y \in \mathbf{R}^n$.

Given any $\varepsilon > 0$ we can find $R > 0$ such that

$$\int_{|x|>R} |k_0(x)|^2 dx < \varepsilon^2$$

The construction can be uniformised over y as follows. Let

$$k(x) = (\int |K(x, y)|^2 dy)^{1/2}$$

we can find $R > 0$ such that

$$\int_{|x|>R} |k(x)|^2 dx < \varepsilon^2$$

This is perfect. This means we have

$$\int_{|x|>R} |Tf_n(x)|^2 dx \leq B^2 \varepsilon^2$$

This step allows us to focus attention to behaviour of $Tf_n(x)$ only on $x \in [-R, R]$.

Given $\varepsilon > 0$ we first choose $[-R, R]$ as above to give up $B^2\varepsilon^2$ of the L^2 mass outside, and then we proceed with an Arzela-Ascoli procedure as follows. We want to choose a finite number of points $x_1, \dots, x_N \in [-R, R]$ judiciously so that we can control

$$\int_{x_j}^{x_{j+1}} |Tf_n(x) - Tf_m(x)|^2 dx$$

independently of n, m . We take our inspiration from Arzela-Ascoli theorem where local control is provided by *equicontinuity*. Putting aside this issue of uniformity of uniform control, we can always replace diagonalisation at a point with an integrated version.

27.2. The Diagonalisation Process For Subsequence Convergence. Recall the argument of producing a convergent subsequence for Arzela-Ascoli theorem. One considers $x_1, \dots, x_N \in [-R, R]$ (the endpoints do not matter but that they are finite so the interval is compact). Then one considers $f_n(x_k)$ and the uniform bound on f_n then allows us to see this is a bounded set of points in a rectangle in \mathbf{R}^N and one can repeatedly apply Heine-Borel theorem in $[-b, b] \subset \mathbf{R}$ if $|f_n| \leq b$ to obtain a convergent subsequence.

The situation here is extremely similar, except we have an integrated bound.

I believe that the Arzela-Ascoli argument contains the universal principles for getting subsequence convergence for functions $\{f_n\}$. We have accomplished the localisation to a compact $[-R, R]$ which is necessary for this programme.

28. VARIOUS SAD STORIES

It was most unfortunate that in the period 1999-2022, that is 23 years of potential productive mathematical life, I made an extremely unwise decision to go and talk to Daniel Stroock because it put strain on me to travel from New York to Boston every week, my marriage was dissolving, and Daniel Stroock was not at all good to me and did not know that I was well-regarded in my mathematical acumen at Princeton with good performance. He did not respect me, and young people should not ever work with anyone who does not respect them at all. But I was too naive and young to know the consequences. My acumen in these Stanford Ph.D. Qualifying Exams is not particular than my acumen in these things in 1995. But I made errors that sabotaged my productive life in Mathematics and Finance because Daniel Stroock was not good at all to me. I found out years later that he was on a campaign against me at Columbia University and elsewhere, which means that I should not have spoken to him at all. But I will chalk up the whole thing as fate.

Bill Gates is a significant threat to around hundred million people in America and billions around the world. He is so evil, so savage and barbaric, zealous about White Supremacist World Order, that it is quite clear to me that Daniel Stroock is a minor issue for my life. Otherwise I would have probably litigated against Daniel Stroock because he sabotaged my career in Finance as well where I have Nobel Prize level genius, not just for my work on closed form long memory stockastic volatility with jumps and my Medium Frequency Alpha Strategies now making significant profits for D. E. Shaw & Co. but I have a refined genius in financial price movements. Daniel Stroock had campaigned and sabotaged my career in Finance as well. He is a good mathematician however, despite these very unfortunate decisions some 23 years ago personally against my interests.

But it is on the other hand a very difficult judgment. In the intervening years, I pursued four-sphere theory which is, by my own assessment, one of the greatest revolutionary events in the entire 350 year history of Science and is infinitely superior to general relativity, quantum field theory, and expansionary cosmology as fundamental physics. Here Daniel Stroock's asking me to find someone else was a reasonable decision, because this is revolutionary science. So by vagaries of twists of fate, I find myself in the strange situation of being a successful Scientific Revolutionary. And that is my life and my fate, for I know extremely well that I am an immortal genius for in the next ten million years, four-sphere theory cannot be displaced from any part of the world at all. It is eternal and unchallengeable. It is not Mathematics even though it is extremely mathematical. It is, instead, much deeper than that; it is the Mathematical Structure of all of Nature above $\delta = 10^{-15}$ centimeters. I was unfortunate by ordinary standards, as the most productive years of my life were not spent in the community of mathematicians but in exile, as Daniel Stroock was very bad to me. But on the other hand, I had seen through the entire facade of this Bill Gates, and had discovered the grave threat Bill Gates poses for the world in time to avert disaster for a large part of the world. I am quite serious that United States Government will be forced eventually to use extreme lethal force to eliminate and destroy Bill Gates in order to survive.

Stanford University ought to make a decision to ensure that I am given a full professorship and arrange for my \$620 million from Finance blockaded for me. There is great value for Stanford by doing so. For most Princetonians, the sort of situation that I have faced is totally unknown, but the peculiar composition of my personality and my peculiar genius was not possible for Daniel Stroock to appreciate. It was my fault for trusting him and taking the risk to go to talk to him at all. I would have made a much better choice by keeping myself safe and working with someone who respects my abilities.

So there is here several things I can contribute to young people with talents. Never work with anyone at all who does not (a) know your performance and (b) does not respect your talents. They will not know and talk to other people. Keep away from everyone who does not highly value your talents until you are established in the field. This I have learned from my own life and would recommend to all young people. The world is set up in such a way that taking a risk when you are young will have harsh negative consequences. Second, never rely on others if possible and engage with whatever parts of mathematics that suits you. In fact no one else can help you. You are responsible ultimately for development of your own gifts on your own.

29. PROBLEM II.3

Suppose $\phi_n \in \mathcal{S}(\mathbf{R})$ and suppose $u_n(\psi) = \int \phi_n \psi$. Suppose $u_n \rightarrow u$ in $\mathcal{S}'(\mathbf{R})$.

(a) Suppose $\|\phi_n\|_2 \leq C$ for all n . Prove that there exists $\phi \in L^2$ such that $u(\psi) = \int \phi \psi dx$.

Let us assume known that $\mathcal{S}(\mathbf{R})$ is *dense* in $L^2(\mathbf{R})$. In other words, every $f \in L^2$ can be approximated by $f_n \in \mathcal{S}(\mathbf{R})$ with $\|f_n - f\|_2 \rightarrow 0$ as $n \rightarrow \infty$.

We need this to ensure that if we have g_n, g with

$$\langle g_n, \psi \rangle \rightarrow \langle g, \psi \rangle \rightarrow$$

for all $\psi \in \mathcal{S}(\mathbf{R})$ then $g_n \rightarrow g$ weakly in $L^2(\mathbf{R})$. Density of $\mathcal{S}(\mathbf{R})$ assures the weak convergence claim.

Now since we have $\phi_n \in L^2(\mathbf{R})$ we can consider linear functionals

$$T_n f = \langle \phi_n, f \rangle$$

The problem is to ensure that the *convergence assumption on distributions* can be translated into a claim about convergence of T_n in $L^2(\mathbf{R})^*$. We have to be careful because for distributional convergence we use seminorms and for the convergence of linear functionals we use norms. This is actually the substance of the problem, because (b) tells us that if we assumed $\|\phi_n\|_1 \leq C$ then the distributional limit is not necessarily L^1 . Now (b) can be done just by taking compactly supported ϕ_n with integral 1 and support in $[-1/n, 1/n]$. The limit is δ_0 which is not an L^1 function. I won't comment on details because it's familiar. If we did not need smoothness it's easy to see piecewise linear functions with support in $[-1/n, 1/n]$ which are tall narrow triangles all have area 1 and converge to δ_0 and there are smooth versions from manipulation of the really useful function

$$\exp\left(1 - \frac{1}{1 - |x|}\right)$$

this function goes to zero at $|x| = 1$ with all derivatives and so extending it by zero is smooth. One can get integral 1 for it by constant and shrink support by scaling the domain and produce smooth versions of 'tall triangles'.

30. PROBLEM II.1

Show that if μ is a sigma-finite measure in a measure space (X, \mathcal{A}) then there is a finite measure ν with $\nu \ll \mu$ and $\mu \ll \nu$.

Sigma finiteness simply means that there is a sequence $X_n \subset X$ so that $\mu(X_n) < \infty$ and

$$X = \bigcup_n X_n$$

It is easy to see that if X is a countable union of disjoint Y_n with finite measures, then we can construct ν as follows. Let a_n be defined by

$$a_n = \mu(Y_n)$$

We can consider the function on X

$$f(x) = \sum_n 2^{-n} / a_n 1_{Y_n}$$

Since $X = \bigcup Y_n$ the function is always positive on X . It is easy to see that

$$\int f d\mu = 1$$

We let $\nu = f\mu$ so $\mu = 1/f\nu$. This solves the problem for disjoint decomposition into finite measure sets.

For the general case, let $X = \bigcup X_n$. We disjointify and produce a disjoint sequence Y_m . The disjointification process is combinatorially messy but set theoretically simple to describe. Suppose we take

$$X_1 \cup X_2$$

We take $Y_1 = X_1 - X_2$ and $Y_2 = X_2 - X_1$ and $Y_3 = X_1 \cap X_2$. Then we use induction to disjointify

$$\bigcup_{n=1}^N X_n$$

Then we let $N \rightarrow \infty$. We obtain $\{Y_m\}$ then that are disjoint and we can apply the procedure described before.

31. AFTER DELVING INTO HISTORY OF NATURAL SCIENCES I AM AMAZED THAT MATHEMATICS IS STILL ALIVE WITHOUT OXYGEN

I am old enough now that I don't give a damn who thinks what any more. I am just astounded and the absolute absurdity of having Physics and Mathematics and Science have independent existence at all. I am amazed that there that they even exist as fields. They were born together and they will never flourish separately. This separation has produced shoddy understanding on both sides and enormous amount of confused thinking, unnecessary misunderstandings, and just a lot of unnecessary complexity and chaos and anarchy in the name of progress. It's total anarchy if you ask me. There is only one thing that all of Mathematics and Science exists for, and that is *Truth* about existence. How is a huge amount of division and strife going to resolve any of it. It makes very little sense. Everyone is rushing to seek independence from everyone else and no one understands a goddam thing anymore with all the various specialisations of turf. It's a goddam nightmare.

32. NEW ATTEMPT II.3(A)

I don't like the lack of clarity in my thinking about II.3(a) at all. There is a reason for this, and that I don't really feel at home with distributions. The central issue here is that we have a sequence of distributions defined by *Schwartz functions*

$$u_n(\psi) = \int \phi_n \psi dx$$

and we know that these distributions converge $u_n \rightarrow u$ to some distribution. And we have to make some conclusions about the form of the limiting distribution u .

Now convergence of distributions is takes place with a family of seminorms. Let's make them explicit. $u_n \rightarrow u$ if and only if

$$\rho_{k,\ell}(\phi_n) = \sup_x |x^k \partial^\ell(\phi_n)| \leq C_{k,\ell} < \infty$$

for all $k, \ell \geq 0$.

At this point I realise that I will have to leave this open. So I.5 and I.4 are still open as well. These will need attention tomorrow. I am quite tired today and will stop working on this.

32.1. Examination of Cauchy Condition For Schwartz Functions. For Problem II.3(a) I am not comfortable with all these distribution razzle-dazzle at all just yet. I understand *why* this is uncomfortable. It is uncomfortable because I am unable really to transition from analysis circa 1910 roughly to post 1949 analysis. I have some experience with thinking, for better or for ill, that complete normed linear spaces are familiar things. With distributions, one is in a slightly different world. For me, suddenly, the psyche likes the comfort of *normed* complete spaces.

Suppose $\phi_n \in \mathcal{S}(\mathbf{R})$. Where happened to *completeness*? In a Banach space I am used by habit to say, "I don't know what this sequence is going to do. Why not look at $\|\phi_n - \phi_m\|$ for $m, n \geq N$ and if we get something uniformly small after a while we'll use *completeness* to posit a limit function.

That's the difficulty of Problem II.3(a). It is that you want to just use Cauchy criterion and completeness instinctively, like walking over to the refrigerator of your own home and getting a cold glass of water but suddenly you stop and look around and say, this seems a bit strange. What happened to the furniture. Oh my god, there's a naked woman snoring in the bedroom. Oh my God, it's not my house!! Then you rush out the door with relief. You didn't even know they had such a strange house where the refrigerator was totally in the wrong place.

And that's the discomfort of these distributions. Where is the completeness and the Cauchy Criterion here? I want to check it and do something with the limit.

Fine, fine the ϕ_n are in L^2 . What about doing something *weakly Cauchy*? These distributions are not normal at all. Where are my familiar security blankets here?

32.2. The Banach-Alaoglu Theorem. In the weak-* topology of X^* the unit ball is precompact for any Banach space. In a desperate attempt for sanity, we apply the Banach-Alaoglu theorem to the set of linear functionals

$$f_n(\phi) = \langle \phi_n, \phi \rangle$$

where we use $\|\phi_n\| \leq C$ to ensure that the functionals are bounded in X^* . Then we pick a subsequence that converges, guaranteed by nothing other than the Banach-Alaoglu theorem in the weak-* topology of X^* . Then we take the convergent subsequence and obtain a bounded linear functional in the limit. Then we apply Riesz Representation theorem to say that this limit functional is integration with respect to some L^2 function.

This gives us a $\phi \in L^2(\mathbf{R})$. I love this approach. It's pure Banach-Alaoglu theorem without any care or concern for the outrageously unfamiliar topology of $\mathbf{S}'(\mathbf{R})$.

Now that's what I am talking about! Probably for the first time in my life I am actually happy with the weak-* topology. It's totally outrageously techno-mumbo-jumbo these topologies but it's a matter of degrees. Banach space arguments are slightly less mumbo-jumbo than seminorm topologies.

You know, I read the historical note about how Laurent Schwartz was treated with skepticism by Marcel Riesz. I read it first from Barry Simon. It's meant to be sympathetic to Laurent Schwartz. Well I don't know. I know distribution theory is all that but I am frankly in agreement with Marcel Riesz. Things are much cozier even with an application of Banach-Alaoglu. And that does solve Problem II.3(a).

Holy moly. This problem almost got me depressed. You have a sequence of Schwartz functions right there, ϕ_n , just staring at you, and just getting a distribution limit that is a genuine honest-to-goodness *function* is suddenly a huge effort where you have to beg for alms in India for a while, then trek over to see the Maharishi of Maharashtra, find out that the British have colonised the country, then talk to Viceroy of Vindaloo, find out that they don't talk to fakirs without money, ship yourself over to America, then find out America's tycoon is plotting a black magic enslavement program for the entire world, then scream and yell to sabotage the son of a bitch, find out that the good white people of Washington think you're the murderer and the entire state of Texas wants you behind bars in solitary. And

when the music stops, who is there to help you? It's Banach-Alaoglu Theorem with weak-* convergence.

It works. I'll move on before some smarty pants finds a deep gap in the result and starts yakking about how that Zulf never gets any problems right.

33. PROBLEM I.5

Let $X = H^m(\mathbf{T})$ and $Y = L^2(\mathbf{T})$ since I get very confused with all the various indices and other symbols floating around.

Suppose $A : X \rightarrow Y$ is a continuous linear map and there is a $B \in L(Y, X)$ such that $AB = I + E$ with E compact on X and $BA = I + F$ with F compact on Y .

We have to show that $\lambda I - A : X \rightarrow Y$ is invertible when $\lambda \notin \mathbf{R}$.

33.1. The Most Familiar Objects. You see when we have different Hilbert Spaces X and Y then the entire familiar machinery of spectral theory is a bit messy.

The first things that seem familiar here are the operators $E \in L(X)$ and $F \in L(Y)$. We will claim that these are compact selfadjoint operators.

Let us begin there. The operator $AB \in L(X)$ so we will have proven that $E = AB - I$ is self-adjoint if we prove it for AB . Let $f, g \in X$.

$$\langle ABf, g \rangle = \langle Bf, Ag \rangle = \langle f, BAg \rangle$$

There is no problem and so E is a compact selfadjoint operator. The spectral theorem for compact selfadjoint operators tell us

$$X = \bigoplus_j e_j H_j$$

where $e_j \rightarrow 0$ and e_j are all real and H_j are finite dimensional eigenspaces with $E_j x = e_j x$ for all $x \in H_j$.

For $\lambda \notin \mathbf{R}$ we certainly have $\lambda - E$ is invertible since none of these λ are in the discrete set $\{a_j\} \subset [-\|E\|, \|E\|] \subset \mathbf{R}$.

Good, that's a solid conclusion and I love it. It's a conclusion about a bona fide compact selfadjoint operator $E \in L(X)$. This makes me happy.

Since the rest of the problem will involve some mumbo-jumbo let me tell you the story of how much I love the spectral theorem for compact selfadjoint operators. You see, years ago, I was just overwhelmed by the beauty of the spectral theorem for compact selfadjoint operators. The year was 1993 and it was Peter Sarnak's Functional Analysis course. Terence Tao and Steven Gubser were both students with me at Princeton. I was a young pup then, so many years ago. And we had the homework problems where we had to do all manner of things including prove the spectral theorem for compact selfadjoint operators. We proved the Peter-Weyl theorem that applied the spectral theorem on self-adjoint operators on $L^2(G)$ for a Lie group. A couple of years before that there was John Horton Conway's freshman course on abstract linear algebra. We were proving various things about spectra of symmetric operators and Jordan Canonical form in 1991. For me it was just very formative.

Years later in 2008, I was looking at fundamental physics and said to myself, this Planck Relationship

$$E = h\nu$$

in nature, it is obviously the result of the spectral theorem for compact self-adjoint operators as well, and this *Max Planck* was unfortunate to have come across the quantisation phenomena without having sufficient knowledge of spectral theory of Δ_M and the Dirac operator D on closed spin manifolds. And that began a great quest for a new fundamental physics, my own *four-sphere theory* that eventually succeeded a decade later. I had given the first correct explanation of quantisation of energy that had eluded all people for literally 108 years. For the first time, the human race was able to fathom the source of quantisation of energy in the universe, that it was due to spectral theorem for *compact selfadjoint operator* – resolvents of Δ_M and D_M on compact static spin manifold $S^4(R)$.

Well I am very proud of my deep discovery for the first time in human history. Obviously these are works of *immortal genius* for I, Zulfikar Moinuddin Ahmed, had shown the way to truth for the entire human race.

As you can imagine, the spectral theorem for compact selfadjoint operators became one of my favourite theorems in the whole wide world.

33.2. Continuation. Let us consider consequences from the result that for $\lambda \notin \mathbf{R}$, we have

$$\lambda - (I + E)$$

is invertible. The Neumann series is

$$R_\lambda(I + E) = \frac{1}{\lambda} \sum_{k=0}^{\infty} \left(\frac{I + E}{\lambda} \right)^k$$

I am not sure how this will help us resolve anything about invertibility of $A : X \rightarrow Y$ yet but since the invertibility is true, we proclaim it. At least it will get us a bit closer to satisfactory conclusion.

One of the interesting issues about mathematical problems is that unless you have a clear and firm path to a satisfactory conclusion, it is best to take a relaxed attitude. Now I am a great immortal Scientific Revolutionary who will be remembered reverently for millions of years in the future for my *four-sphere theory*. In America, there is some confusion still even though I am American.

Oh, I'll show you my Permanent Residency documents.



At the moment it expires in 2031. I am trying to get the United States Government totally destroy the Empire of this malevolent hick illiterate lifelong charlatan with a bird-brain *Bill Gates* at the moment because the wretched miserable

worthless cunt invaded my Blood Meta and cut deep into my Deep Interior with all manner of Conquest and Enslavement meta and even the Chief Justice *John Roberts* considered it but the corrupt United States Government does not want to do the right thing and wipe out the little shit with extreme lethal force. They would rather coddle the worst horrible sick malevolent evil sons of bitches and pretend they are *philanthropists* and kill random people who had done nothing wrong all over Asia with drones while waxing poetic about natural rights like little moronic chimpanzees who cannot understand the precepts of their own organisational character. What can you do? The world is the way it is and not the way you would like it to be huh?

33.3. An Algebraic Manipulation. We now consider some algebraic manipulations that we will not worry about justifying. The hope here is that even though X and Y are different Hilbert spaces, we will be able to use some algebraic manipulation to produce a result.

$$\begin{aligned}\lambda - A &= \lambda - A(BA - F) \\ &= \lambda - ABA + AF \\ &= \lambda - (I + E)A + AF \\ &= \lambda - A - EA + AF\end{aligned}$$

Hmm, let's look at this

$$\begin{aligned}\lambda - AB &= \lambda - AB + \lambda B - \lambda B \\ &= (\lambda - A)B - \lambda(I - B)\end{aligned}$$

So we have a firm conclusion that $\lambda - AB$ is invertible, and this gets us a little closer, and says that

$$(\lambda - A)B - \lambda(I - B)$$

is invertible. And our goal is what? It is to prove that $\lambda - A$ is invertible.

Let's take a step back from this problem. First of all, let the reader be assured that I don't know the answer here. I am exploring with an optimistic hope that I will be able to get somewhere by some algebraic manipulation but I am not seeing the solution yet.

33.4. Another Attempt. There is a principle for invertibility of small perturbations. We could write

$$\lambda - A = (\lambda B - I)A - \lambda F$$

Since F is small we will have invertibility of $\lambda - A$ if we can establish it for $(\lambda B - I)A$.

This is quite unclear still. $AB = I + E$ and $BA = I + F$ so these are almost invertible. We could do something there. Suppose E is small. Then then A is invertible.

Maybe this will go somewhere. You see

$$AB = I + E$$

so $(AB)^{-1} = B^{-1}A^{-1} = \sum_{k=0}^{\infty} E^k$ So once we know A is invertible, then

$$(\lambda - A)^{-1} = A^{-1}(\lambda A^{-1} - I)^{-1}$$

Ah, that's the problem we can't use the Neumann series. But we nevertheless, we could use self-adjointness here.

34. NEW ATTEMPT PROBLEM II.4

The map P restricted to X is a surjective linear map $P_0 : X \rightarrow Y$. This is the key to the problem. We apply Open Mapping theorem here. This is a solid step, and what we're missing is an inverse map. Then we ought to take the nullspace and augment it to produce a bijection from P_0 . The inverse will produce the requisite bound.

34.1. Quotient Of Banach Space. We don't have orthocomplements in Banach spaces, But we can quotient. Here's the idea.

First define $P_0 : X \rightarrow Y$ and then let $K \subset X$ be the nullspace of P_0 . Then define $P_1 : X/K \oplus K \rightarrow Y \oplus K$ by $P_1(w, k) = (P_0w, k)$. This is surjective and injective so there is by Inverse mapping theorem a bounded linear inverse $Q : Y \oplus K \rightarrow X/K \oplus K$.

$$\|Q(a, b)\| \leq C(\|a\|_Y + \|b\|_X)$$

When we let $a = P_0u$ we obtain the required bound.

35. RETURN TO PROBLEM I.5

The final remaining problem is I.5 and it is now 8:30 PM, February 7 2022. I am examining the issues. A new idea I have is that A itself is invertible as follows.

$$AB = I + E$$

So

$$A \frac{B}{I + E} = I$$

So the inverse of A is just $B(I + E)^{-1}$. Let us assume this is possible. Then

$$(\lambda - A)^{-1} = A^{-1}(\lambda A^{-1} - I)^{-1} = \frac{B}{I + E} \left(\lambda - \frac{B}{I + E} \right)^{-1}$$

This is progress certainly for Problem I.5. Unfortunately the issues here are not clear enough to me yet. I really do not feel comfortable when spectral analysis is not done in $L(X)$ but I do understand that this is precisely the purpose of this problem. That is what I am trying to achieve here, what if we considered $B/(I+E)$ as the inverse of A .

Well I will think about this.

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